How does music as a digital service affect consumer attitude and behaviour?

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Abstract:

Digital technologies allow users to share files, which in some circumstances violates property rights and constitutes consumer misbehaviour. This form of behaviour, often called piracy, is cited as causing revenue loss to the creative industries. Existing empirical evidence is silent on consumer's individual beliefs and their attitudes towards copyright infringement. A new concept dubbed the 'Robin Hood' tendency is developed as a quantitative measure of consumer belief that illegally copying and distributing digital resource is a legitimate form of behaviour. Analytical applications are developed which exploit a unique dataset comprising 18,000 data points for music consumers from ten countries. Results show that digital markets suffer from consumers who demonstrate the Robin Hood tendency and identifies that countries with strong institutions have fewer consumers with this attitude. Furthermore, evidence suggests that copyright law enforcement should be coupled with efforts to educate consumers as to the effect their misbehaviour has content creators.

Keywords: Digital service, consumer survey, individual misbehaviour, file-sharing, purchasing propensity.

Code JEL: D12, D23, M21, M31.

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1. INTRODUCTION

Everyone enjoys music, but what is it? Is it a product, a service, an experience? How do we sell it and what is its value? Recorded music sold in physical format, either on vinyl or CD, has historically generated significant financial returns. Global recorded music sales in 1997 were USD 27.6 billion. However, once music entered the digital domain those recorded music revenues radically reduced, falling over USD 10 billion to USD 16.5 billion in 2012 (Bustinza et al., 2013a).

Music is now available to the consumer as both product and service (Sandulli and Martin-Barbero, 2004; Parry et al., 2012). One can buy a physical CD, a vinyl record, a digital download, access streaming services, or listen via internet radio which can be personalised to your tastes. There are a growing number of sales channels through which music firms reach out to their audiences, but revenues have not significantly increased in over a decade. With so many new ways to access music, why haven't sales revenues gone up?

Music sale's experience has changed as a result of *servitization*, a phenomenon described as the move by traditional manufacturing firms to generate revenue through the provision of service associated with their product (Vandermerwe and Rada, 1989). Firms in this sector are moving from a focus on selling music as a physical product towards creating value from selling music in digital formats which gives rise to different business models, including many music listening services. In developing a broad portfolio of ways to access music, the digital servitization of the music industry has been progressing for a decade (Bustinza et al., 2015).

As we move from the physical to the digital sales channel, a physical tangible object is no longer present at the point of sale, even though a physical object may arrive in the post later (Martin-Peña and Diaz Garrido, 2013; Porter and Hepelmann, 2014).

Exchange value underpins the traditional view of the customer–producer relationship with each party exchanging one value unit for another, e.g. a vinyl album for money. With the servitization of the music industry, a physical product is often no longer present at all when someone buys a digital track online or pays for streaming service (Bustinza et al., 2013b). The focus of value for online digital music services is very different. Access to almost any desired music is possible within a very short time of asking for it. Consumer payment may happen for a digital download, or a streaming service. It may not happen if the consumer accesses music through a streaming service which makes its money from advertisements and where the artist may get a small revenue per play. Or it may not happen if consumers illegally download or stream the music from a pirate website.

Music piracy significantly decreases sales revenues and is a common problem around the world. Based upon conservative analysis, an estimated 28% of people participate in illegal file sharing (Bustinza et al., 2013a). That's almost a third of the potential market and clearly represents a major problem for the music industry and the artists who don't get paid for their creative efforts. There are attempts to explain that taking music without paying is not right and collectively consider how to support artists. The general objective here is to develop a more comprehensive empirical framework, filling the gaps not covered by previous literature.

The concept of illegal file-sharing of digital music has come to represent the ultimate bargain for the consumer as property can be acquired at no cost (Danaher et al., 2014). Piracy behaviour is complicated as empirical research using survey data has shown that a significant portion of illegal file sharers also claim to purchase music (Bustinza et al., 2013a). Such action may appear economically irrational as why would a consumer pay for an item they can get for free? We elucidate this apparent discrepancy between theory and evidence by demonstrating that a subgroup of illegal

file sharers misbehaves but subsequently purchase because they want to avoid feeling guilty (Henning-Thurau et al., 2007).

In contrast to other retail offers which collect transaction data from consumers, managers from the music industry have much less access to actual consumer transaction data and therefore survey data is employed (Parry et al., 2014a). For this reason the empirical analysis in this work relies on a survey conducted during work with industry experts from one of the big 3 global music firms. The survey contains detailed information from more than 18,000 consumers residing in ten different countries. The particular aims of this article are threefold:

- To contribute to extant literature by identifying a type of consumer attitude that links to misbehaviour and is named the Robin Hood tendency. This is a consumer deviance that considers illegally copying and distributing digital resource as a legitimate form of behaviour.
- To develop an analytical approach to show the links between national institutions and the Robin Hood tendency.
- To quantify the commercial consequences of consumer misbehaviour, in this particular context the effects of illegal file-sharing (actual consumer behaviour) and the Robin Hood tendency (consumer attitude or belief) on the likelihood of a consumer making a purchase.

The paper is organized as follows. The next section describes the theoretical underpinning which is followed by research question development. The paper then presents results and discusses theoretical and managerial implications of the findings.

2. MUSIC AND DIGITAL SERVICES

Digital technologies have empowered consumers in many positive ways; however, it has also given them the option to easily and illegally obtain music and video files – that traditionally were highly priced– for free. Consumers' illegal activity is a real challenge for marketers who need to achieve flows of monetary transactions for digital content when copies of that content are often readily available within consumer networks at no cost. This problem touches upon consumer beliefs and their willingness to pay.

Digital technology has forced firms to improve their competitiveness with particular focus placed upon consumer understanding of value offerings (Casadesus-Masanell and Ricart, 2011). For this reason, consumer behaviour and patterns of consumption have become relevant topics for cosmopolitan brands. Though the majority of consumers display citizenship behaviour that helps organizations, a number act in ways which damage organizations and other customers.

Consumer behaviour is culturally influenced and differs across cultures and locations. These cross-cultural behavioural differences have been correlated to other factors such as institutional causes and the origin of the legal framework of the consumers' country (Bustinza et al., 2013a). Currently there is extensive research on file sharing (see Parry et al., 2014a), but there is a lack of empirical exploration of causes and consequences of consumer misbehaviour.

2.1. Unpacking Consumer Misbehaviour: The Robin Hood Tendency

Levi et al. (2009) conceptualize legitimacy as the factors which create a sense of obligation that can translate into an individual's willingness to comply with regulations and laws. According to Fullerton and Punj (2004), consumer misbehaviour is defined as those acts which transgress accepted norms of conduct in

consumption situations through actions of interest externally visible. They further state "...to a surprising extent, much of this misbehaviour is tolerated, suggesting that it has become accepted a part of the consumer experience." (2004, p. 1239) even when these acts of consumer misbehaviour break the "social contract".

Lovelock (1994) develops the concept of consumer misbehaviour and coins the term “jay customer” to mean consumers who deliberately cause problems for the firm, employees, or fellow consumers. From the point of view of the consumer, jay customer behaviour does not have to be irrational in nature. When a consumer perceives injustice this kind of behaviour may be displayed to resettle equity. But do consumers perceive injustice associated to the appropriation of others’ property rights?

In the context of the piracy it is normally assumed that file-sharers consider that digital files do not have a physical presence, and hence there is nothing to be stolen. Such a construct is built upon a lack of empathy in the interaction of human-to-machine and explains why some illegal file-sharers do not recognize the uncivil nature of their behaviour. However, some consumers believe in copyright as a legitimate means of property rights protection and consequently suffer from a psychological cost if they download content illegally (Hennig-Thurau et al., 2007). Thus, consumers are categorized into three different groups according to their beliefs and actions with regards to property rights. The first group believes existing regulations are legitimate and act legally, so create no protection transaction costs. The second group agrees with the spirit of property rights legislation but for reasons such as financial difficulty decide to engage in illegal download of files. The third group believes that copying and distributing digital resource is a legitimate form of behaviour, exhibiting an attitude described by the authors as a ‘Robin Hood’ tendency.

Bustinza et al. (2013a) provide evidence at the global level of the heterogeneity of the purchasing behaviour of illegal file sharers. They found that 53.5% of file sharers do not engaged in purchasing music at all. This evidence suggests that, of those who illegally file share, there likely exists a well-defined group of consumers who exhibit the Robin Hood tendency. This is summarized in the following research question:

> *RQ1a: The belief that illegally copying and distributing digital resource is a legitimate form of behaviour can be encapsulated in a single factor dubbed Robin Hood Tendency.*

Rodriguez-Pose (2013) have recently pointed out that economic development in a given geographical area is linked to formal institutions such as Education, Legal Systems and Infrastructure, and informal institutions such as social norms, traditions, social conventions, and individual beliefs. In particular, economic development is linked to those institutions that constrain key factors of the economy, such as labour skills and technological innovation. In this regard, the legal system of a country is normally considered a key driver of development. Legal arrangements affect the system of incentives available and allow the grouping of country legal systems according to their legal tradition (Laffont, 2006). In the analysis of commercial law, legal tradition can generally be divided into common law from England and civil law from France. English common law has a higher adaptability and capacity to enforce established rights than French civil law. Given two countries with the same level of development, it is expected that the higher the level of legal enforcement, the lower the level of corruption and economic malfunction that will be witnessed. When economic agents are poor, financial fines for corruption are limited. As stated “the optimal level of corruption per transaction open to corruption is also high” (Laffont, 2006, p. 163). Corruption, as a type of misbehaviour, is increased when institutional change happens. Corruption within bureaucracy has a detrimental effect on the

economic growth of underdevelopment countries, and entrepreneurs have condemned it. Financial fines also begin to increase until a point where fines are so high that the volume of corruption decreases and it is less costly to fight corruption. As happens with corruption illegal file-sharing is linked to law enforcement (Danaher et al., 2014) and thus it is possible to state the following empirical hypothesis:

RQ1b: The speed in which national institutions react to individual requests (i.e. bureaucracy) is positively linked to the country-average Robin Hood tendency.

Assuming perfect substitution, where the quality and information contained in the copied file is the same as the original, there is no economic reason for illegal file-sharers to pay for a resource and access to resource attributes that can be obtained for free. Individuals who engage in illegal file sharing gain new content at zero cost, but the resource owner incurs a transaction cost as they lose potential revenue (Teece and Al-Aali, 2013). Formally, this concept has been described as purchase substitution (Liebowitz, 2006), a phenomenon produced when consumers illegally copy an object or item which then acts as a substitute for a legal purchase. In the extreme the existence of purchase substitution implies that all those engaging in illegal file sharing provide no revenue for the resource owners as they demonstrate an unwillingness to pay. These arguments lead to the following research question:

RQ2: File sharers have a lower likelihood of purchasing than non-file sharers.

However, the presence of a behavioural direction such as illegal file sharing moderates, but does not dominate, an individual's attitude towards purchase of an item. Bustinza et al. (2013a) found that some illegal file sharers also purchase; a fact that can be justified by a psychological cost of acting illegally; namely a feeling of guilt, or in the framework of the present research, the lack of the Robin Hood tendency among some illegal file-sharers.

The relationship between the Robin Hood tendency and the likelihood to purchase is under-explored. In the present article we posit that the presence of the Robin Hood tendency in a consumer should reduce their positive attitude towards purchasing, and this effect should be economically more acute amongst the illegal file sharer population. This leads to the following two research questions.

RQ3a: Individuals with a high Robin Hood tendency have a lower likelihood of purchasing than those individuals with low tendency.

RQ3b: The negative effect of illegal file sharing behaviour worsens when the individual shows a high Robin Hood tendency.

Figure 1 summarizes the model and research questions showing the variables to be estimated, which are explained in detail in next section.

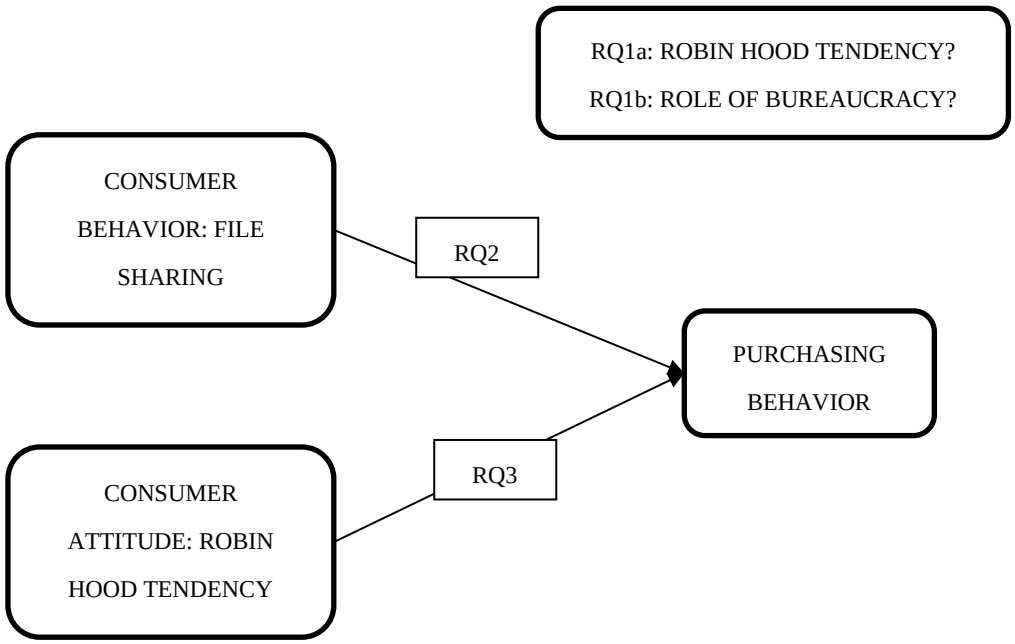


Figure 1. Theoretical underpinning and relations predicted.

3. EMPIRICAL ANALYSIS

3.1 Data Collection

The music industry is led by 3 major music-licensing firms who hold over 70% of the market share in terms of property rights to music resource. Industry revenues have been in sharp decline over the past decade (Parry et al., 2012). Music consumer surveys collected by one of the 'Big 3' global music companies from ten different countries provide data concerning individual characteristics, beliefs, file sharing activity and music consumption patterns.

With online survey data it is possible to analyse the behavioural motivations and develop upon the theoretical foundations discussed previously. The data contains 18,842 observations from ten different countries: Spain, Germany, France, Italy, Netherlands, UK, US, Canada, Australia and Japan (for a detailed sample description see Bustinza et al., 2013a or Vendrell-Herrero et al., 2016).

3.2 Estimating Robin Hood Tendency

The present article contributes to the extant literature providing a new construct dubbed the Robin Hood tendency through the use of Likert scales, which measure unobservable attitudes and reduces social desirability bias (Hair et al., 2001). As such, we used the predicted value of a factor analysis, a method recommended by Lafuente et al. (2010).

A measure for individuals' respect for property rights is created using three items (ROB1: I am not willing to pay for music; ROB2: I prefer to risk downloading music illegally rather than buying it legitimately; and ROB3: I prefer to acquire music without paying – i.e. download from file-sharing sites, etc.) to form a five-point Likert scale creating the measure for an individual's Robin Hood tendency. Analysis of the data was performed to test RQ1 and reported 56.5% of the items' variance explained. Analysis of the scale's internal consistency yields a

Cronbach's alpha value of α=0.92. Using Confirmatory Factor Analysis the composite liability is calculated as 0.83 with an average extracted variance over 0.5. These values confirm this is a good instrument for measuring the variables (Hair et al., 2001).

The variable obtained gives an indication of the Robin Hood tendency of the individual. The variable follows a normal distribution with mean zero and standard deviation of one. Positive values mean that the individual shows attitudes coherent with a Robin Hood tendency and higher values imply that the individual shows stronger traits of this consumer misbehaviour. In contrast negative values imply that the individual shows a respect for property rights. Table 1 reports the average Robin Hood tendency by gender, age and working status. It can be observed that (i) males have a higher Robin Hood tendency than females; (ii) a positive Robin Hood tendency is most profound in those aged between 25 and 39 years old; and (iii) groups with lower income (students and the unemployed) demonstrate a greater extent of Robin Hood tendency.

Table 1. **Mean values of Robin Hood Tendency by personal characteristics**

		Robin Hood Tendency
Categories	**Personal characteristics**	**Mean**
Gender	Male	0.064
	Female	-0.072
Age	Aged under 24	-0.066
	Aged 25-39	0.345
	Aged 40 -59	-0.160
	Aged over 60	-0.163
Working Status	Income Full time	-0.077
	Income Part time	-0.042
	Out of Job Market	-0.081
	Students	0.234
	Unemployed	0.101

3.3 Institutional Quality as a Driver for Robin Hood Tendency

The estimation of the Robin Hood Tendency has been calculated at the individual level but those individuals can be grouped at meta-levels using variables such as the legal framework of their country of origin. In this regard previous literature suggests that those from countries with a French legal origin are positively correlated to corruption or other kinds of consumer misbehaviour. The evidence supports this literature and shows that French Legal origin countries (0.238) on average show a larger Robin Hood tendency than German (-0.082) or English (-0.126) legal origin countries. This reinforces the established idea that legal frameworks affect individual attitudes; but at this level of aggregation the evidence seems weak.

The alternative approach taken in this application and also in previous literature on the subject (Bustinza et al. 2013a and Vendrell-Herrero et al 2016) is to aggregate consumers at country level. The advantage is that there are many variables measuring the quality of institutions at country level which can be included in a regression to explain the Robin Hood Tendency. For that purpose, information from the Doing Business platform was downloaded (www.doingbusiness.org), specifically that information linked to the number of days required to enforce a contract, start-up a business and get a construction permit for 2010, the same year the survey was conducted. These variables were selected as each measures the speed in which governments react to individual actions. Consumers in countries with solvent institutions and relatively fast processes in dealing with requests will perceive a larger threat of being punished than consumers dealing with slower more bureaucratic governments. According to RQ1b the threat of punishment will be negatively linked to a Robin Hood tendency.

Figures 2, 3 and 4 show graphically the estimations of regressing the time required to enforce a contract, start-up a business and get a construction permit, to aggregated Robin Hood tendency respectively. The evidence shown in the three Figures provides evidence at a macroeconomic level of a positive relationship between the speed in which governments react to individual requests and consumer misbehaviour. However, the explanatory capacity of the models differs amongst the variables considered. The R^2 differs from slightly more than 12% in the model represented in Figure 2 to almost 58% in model represented in Figure 4. The significance of the parameters estimated also differs and it is significant only in the third model (p-value = 0.011), and is non-significant for the models estimating enforcement of contracts (p-value = 0.318) and starting-up a business (p-value = 0.159). Even though in the latter cases the significance is low the findings clearly suggest a negative correlation between institutional quality and consumer misbehaviour.

Figure 2. **The correlation between time to enforce a contract and Robin Hood tendency**

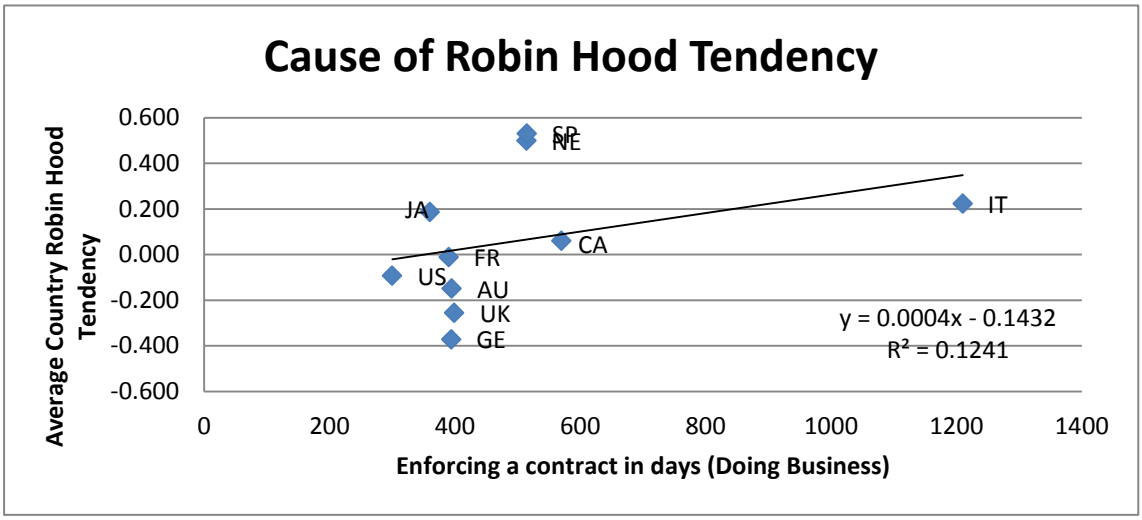


Figure 3. **The correlation between time to start-up a business and Robin Hood tendency**

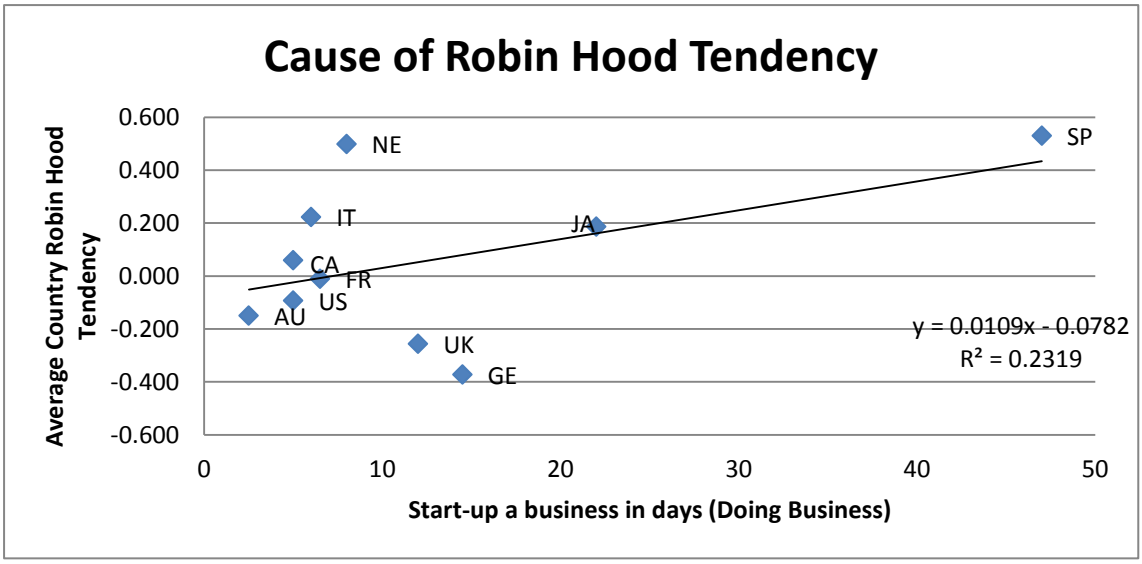
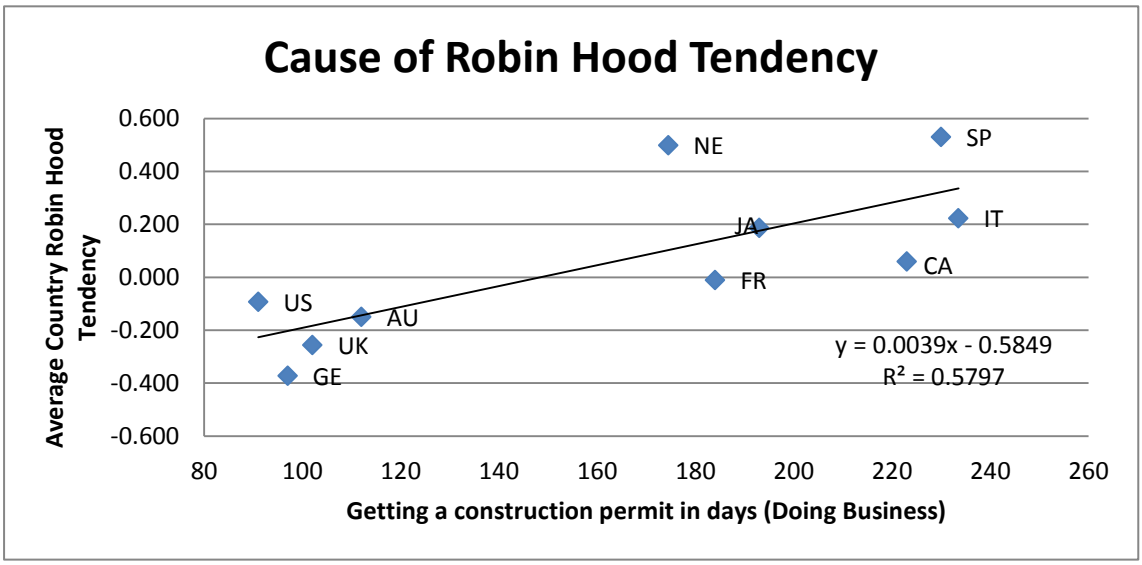


Figure 4. **The correlation between time to get a construction permit and Robin Hood tendency**



3.4 Commercial Consequences of File Sharing and Robin Hood Tendency

The third aim of this research is to better understand the attitude vs actual behaviour dichotomy and its links to consumer purchasing. Our analysis in the music industry is underpinned by the fact that digital services are empowering consumers, and hence when consuming music they can take a decision to access content legally or illegally. A consumer's propensity to buy music is not directly observed. What is observed instead is their actual choice, purchase or not. Therefore, a binary regression (i.e.

Logit) is the appropriate empirical strategy to estimate the propensity to purchase. In this article we use the same data as Vendrell-Herrero et al. (2016) where 70.8% of the individuals in the sample are buyers, split further into physical buyers, digital buyers and consumers that buy both formats. In Table 2 of Vendrell-Herrero et al. (2016) the authors include the actual behaviour of file sharing as an independent variable to explain the consumer decision to purchase music in digital or physical form. In both models the coefficient is negative and statistically different from zero. Results of the LOGIT model are provided in Table 2, and consistent with Vendrell-Herrero et al. (2016), the coefficient is negative and significant. According to the marginal effect parameter illegal file sharers are 4 percentage points less likely to purchase music than non-file sharers. This result confirms the expectation of Research Question 2 and hence it is accepted.

Table 2. **Determinants of the propensity to purchase**[1]

Dep Var. Buy music	**LOGIT**	
	Betas	Marginal Ef.
Behaviour: File Sharer	-0.25*** (0.04)	-0.04*** (0.01)
Attitude: Robin Hood tendency	-1.05*** (0.02)	-0.18*** (0.01)
Control Variables	YES	YES
Interactive term: *File Sharer x Robin Hood tendency*:		
Pr (Buy) > 0.7	Negative	
0.4>Pr (Buy)>0.7	Zero	
Pr (Buy) < 0.4	Positive	
Corrected predicted Probability:		
Pr(Buy)=0	47.67%	

[1] Standard errors reported within parentheses. Level of statistical significance: *** 1%, ** 5%, * 10%. Control variables include gender, working status, age, passion for technology, passion for music, hours listened of music per week, legal origin and geographical location. Results of the interactive term is based on Ai and Norton (2003) graphical method.

Pr(Buy)=1	89.92%
Overall	77.60%
Log likelihood	-8683.06
Pseudo R2	0.23
Number of observations	18842

What should firms do in reaction to this negative effect? Whilst some argument remains as to the level of remuneration that artists and copyright holders should be paid for their work, there is general agreement that current laws are insufficient for protection of rights in the digital environment and different IPR legislation is necessary, but the challenge lies in what form the legislation should take (Parry et al., 2014b). In this regard, previous empirical research has made economic assessments of new regulations protecting property rights, supporting claims that IPR legislation protects industry revenue (Danaher et al., 2014).

But this is a part of the history of the internet. By introducing regulation firms and policy makers are not necessarily affecting consumers' beliefs of what is right. We extended the analysis in Vendrell-Herrero et al. (2016) by including the variable Robing Hood and the interaction between Robing Hood and File Sharing into the discrete choice regression model. This analysis allows a clear answer to be given to the question "why do file sharers purchase?" (Bustinza et al., 2013a). As predicted by Henning-Thurau et al. (2007) analysis demonstrates that the feeling of guilt, in this case a recognition that copyright is legitimate, the inverse of Robin Hood tendency, is positively linked to purchasing behaviour. We found that the parameter of Robin Hood is negatively and statistically significant at 1% (see Table 2). The size of the parameter is four times bigger than the parameter of the file sharing (both in the coefficient and in the marginal effect). According to our results an increment of 1% in the Robin Hood tendency decreases an individual's likelihood of purchasing music by

0.18 percentage points. This result supports Research Question 3a, and seems to indicate that the Robin Hood tendency has a more relevant impact on purchasing than the actual behaviour of file sharing.

According to Ai and Norton (2003) some caution is needed when estimating the interactive terms in discrete choice models. In this regard the use of graphical analysis of interactive terms has been strongly encouraged in social sciences. With this approach it is possible to target consumers depending on their propensity to purchase. From a managerial perspective it seems reasonable to assume that music industry managers will seek to re-engage consumers who show a large probability of purchasing rather than engaging with those consumers who would likely not consider purchasing. The data suggests that for illegal file sharers with a high-predicted probability of purchasing (higher than 70%) a larger Robin Hood tendency would decrease their probability of purchasing. This implies that the negative impact of file sharing becomes even more negative in the presence of an individual that has little regard for property rights, in our context the Robin Hood tendency. This result supports Research Question 3b.

4. CONCLUSIONS

We contribute to consumer and market quantitative research providing empirical insights in the under-explored area of consumer misbehaviour in the music industry. For this aim a novel concept is presented, named the Robin Hood tendency. This tendency describes a consumer attitude displayed by those that believe illegally copying and distributing digital resource is legitimate. This Robin Hood measure allows us to determine differences between consumer attitudes and final behaviour, a novel approach to understand consumers in the music industry context. Empirical

analysis from a large consumer survey dataset provides evidence of the institutional causes and commercial consequences of this misbehaviour. Understanding this new concept is important for consumer insight departments in creative industries; industries severely affected by the digital disruption (Vendrell-Herrero et al., 2016). Under this new competitive scenario, digital servitization has transformed traditional products into complex systems that combine product, services and customer knowledge (Porter and Heppelmann, 2014; Bustinza et al., 2015)

Furthermore, this method informs managers in multinational companies of the likelihood of consumer misbehaviour in a given country. In particular, the evidence offers analysists a relatively low cost way to understand aggregated causes of certain consumer attitudes, providing there is sufficiently detailed country specific information available from secondary sources. Moreover, sources of heterogeneity are found when estimating the averages of Robin Hood tendency at country level, which allows correlation of the national measure of Robin Hoods against legal origin and quality of institutions, measured by the amount of days that institutions need to respond to individual queries. The results support a negative link between quality of institutions and consumer misbehaviour, such that countries with highly rated institutions also had fewer consumers who misbehave. This result is consistent with previous research (Rodriguez-Pose, 2013) and calls for the acceleration and simplification of the processes of enforcement of policy in countries where institutions are slow to respond (Parry et al., 2014).

In terms of strategy, a direct managerial implication from the empirical results is that industry needs to campaign to influence individual beliefs to increase the respect given to property rights in addition to efforts to enforce property rights legislation. Respect for property rights increases the likelihood of an individual purchasing. This result is consistent with the positive relationship between the perception of being

caught and the willingness to pay shown by Sinha and Mandel (2008). File sharers have a probability of purchasing greater than 60%. As illegal file sharers respect for property rights increases, their propensity to purchase legally is increased in all formats.

A further implication is the importance and relevance of data gathering, which is required in order to have a better understanding of the consumer. In demand-centric sectors (Parry et al., 2012) collecting and analysing data is a vital requirement. The quantitative methods used here:

- Open a new stream of behavioural research with novel methodological insights on how identify and evaluate consumer misbehaviour.
- Show how to combine data sources at aggregated levels. Analysis at country level provides potentially valuable insight for multinationals.
- Assesses the commercial consequences of consumer misbehaviour through discrete choice modelling.

With regards limitations, demand functions are estimated using logistic regressions, so the purchasing propensity is observed, not the volume purchased. Data does not provide individuals potential expenditure on resource, which means that the changes in expenditure are directions and give no measure of total monetary gain or loss. This is a limitation since the actual economic impact is not estimated.

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